In the Specification

Please replace the Description of the Drawings with the following:

Description of the Drawings

**Figure 1** is a perspective view of a first embodiment of the safety syringe illustrating the needle shield in a first, closed position and in a second, open position;

**Figure 2** is a detailed perspective view of the **Figure 1** embodiment illustrating the means for securing the needle shield;

**Figure 3** is a perspective view of the **Figure 1** embodiment illustrating the means for moving the needle shield from the first position to the second position;

**Figure 4** is a perspective view of the **Figure 1** embodiment illustrating the means for securing the needle shield in the first position and the second position;

**Figure 5** is a perspective view of the **Figure 1** embodiment illustrating the sealable membrane preventing fluids from leaking from the needle shield;

**Figure 6** is a perspective view of a second embodiment of the safety syringe illustrating the needle shield in a first, closed position and in a second, open position; and

**Figure 7** is a perspective view of the **Figure 2** embodiment of the safety syringe illustrating the mating lips of the needle shield in a first, closed position and in a second, open position.

Please replace the Detailed Description of the Preferred Embodiment with the following:

Detailed Description of the Preferred Embodiment

As shown in **Figure 1**, a safety syringe **10** may be constructed from the following components. A hollow body **14** is provided. The body **14** is of a first predetermined length **18**

and has an outer surface **22**, a first end **26**, a second end **30**, cylindrical bore **34** of a first predetermined diameter **38**. Means **42** are provided for gripping the hollow body **14** adjacent the second end **30**. The first end **26** of the hollow body **14** includes an opening **46** of the first predetermined diameter **50**. The second end **30** includes a cavity **54** extending from the cylindrical bore **34** and terminating in an outlet portion **58**. The outlet portion **58** has a first end **62**, a center section **66** and a second end **70** and is fixedly attached at its first end **62** to the cavity **54**. The outlet portion **58** includes an orifice **74** of a second predetermined diameter **78** that extends outward from the cavity **54**.

A hollow needle **82** is provided. The needle **82** has a first end **86** and a second end **90** and is fixedly attached at its first end **86** to the second end **70** of the outlet portion **58** such that fluid ~~**162**~~ (not shown) may travel from the cylindrical bore **34**, through the cavity **54**, through the outlet portion **58** and through the needle **82**. A plunger **94** is provided. The plunger **94** has a longitudinal shaft **98** longer than the first predetermined length **18**, a first end **102** and a second end ~~**106**~~ (not shown), a thumb pad **110** fixedly attached to the first end **102** of the shaft **98**, and a piston (not shown) ~~**114**~~. The piston ~~**114**~~ ~~(not shown)~~ is formed of a resilient material ~~**118**~~ (not shown), attached to the second end ~~**106**~~ ~~(not shown)~~ of the shaft **98**, and is sized and shaped to fit sealably within the cylindrical bore **34** of the hollow body **14**.

A needle shield **122** is provided. The shield **122** has an outer surface **126**, a first end **130**, a second end **134**, and is sized and shaped to fit slidably over the needle **82** and at least a portion of the hollow body **14** of the syringe **10**. Means **138** are provided for securing the needle shield **122** at its first end **26** to the hollow body **14** in a first position **142**. The first position **142** permits the second end **90** of the needle **82** to extend outwardly from the second end **134** of the shield **122**. A second position **146** permits the second end **134** of the needle shield **122** to extend

beyond the second end **90** of the needle **82**. Means **150** are provided for moving the needle shield **122** from the first position **142** to the second position **146** using a single hand ~~**154**~~ (not shown). Means **158** are provided for containing any fluid leaking ~~**166**~~ (not shown) from the second end **90** of the needle **82** within the needle shield **122** when the shield **122** is secured to the hollow body **14** in the second position **146**.

In a variant of the invention, as shown in **Figure 2**, the means **170** for securing the needle shield **122** at its first end **130** to the hollow body **14** in first **142** and second positions **146** further includes a first surrounding groove **174**. The first groove **174** is located on the outer surface **22** of the hollow body **14** adjacent its second end **30**. A second surrounding groove **178** is provided. The second groove **178** is located on the outer surface **22** of the hollow body **14** adjacent its first end **26**. An engaging finger **182** is provided. The finger **182** is formed of resilient material **186** and has an upper surface **190**, a lower surface **194**, an activating end **198**, an attaching end **202** and a pivot point **206** located between the ends. A securing tooth **210** is provided. The tooth **210** has an upper end **214** and a lower end **218** and is fixedly attached at its upper end **214** to the lower surface **194** of the engaging finger **182** adjacent the attaching end **202**. The securing tooth **210** is sized, shaped and located to removably engage one of the first **174** and second surrounding grooves **178** on the hollow body **14**.

A mounting post **226** is provided. The post **226** has an upper end **230**, a lower end **234** and is fixedly mounted at its lower end **234** to the outer surface **126** of the needle shield **122** adjacent its first end **130**. The post **226** is fixedly attached at its upper end **230** to the lower surface **194** of the engaging finger **182** at the pivot point **206** such that the resilient material **186** of the engaging finger **182** will bias the securing tooth **210** downward to removably engage one of the first **174** and second surrounding grooves **178**. When pressure is applied to the upper

surface **190** of the engaging finger **182** adjacent its activating end **198** the securing tooth **210** will pivot upwardly away from one of the first **174** and second securing grooves **178**, permitting the needle shield **122** to move slidably from the first position **142** to the second position **146**. When the securing tooth **210** is positioned over one of the first **174** and second securing grooves **178** and pressure is relieved from the upper surface **190** of the engaging finger **182** the securing tooth **210** will engage one of the grooves, preventing further movement of the needle shield **122**.

In yet another variant, as shown in **Figure 3**, the means **236** for moving the needle shield **122** from the first position **142** to the second position **146** using a single hand ~~154~~ (not shown) further comprises an indentation **238** located on the outer surface **126** of the needle shield **122** adjacent its first end **130** and is sized and shaped to engage a finger pad ~~242~~ (not shown) of a user.

In still a further variant of the invention, as shown in **Figure 4**, the means ~~246~~ 252 for containing any fluid leaking ~~166~~ from the second end **90** of the needle **82** within the needle shield **122** when the shield **122** is secured to the hollow body **14** in the second position **146** includes a sealing membrane ~~250~~ 256. The membrane ~~250~~ 256 is fixedly attached to the second end **134** of the needle shield **122** and permits the hollow needle **82** and the second end **70** and center section **66** of the outlet portion **58** to pass through the membrane **250** when the needle shield **122** is in the first position **142**. The sealing membrane ~~250~~ 256 is capable of sealing the second end **134** of the needle shield **122** when the shield **122** is in the second position **146** with the hollow needle **82** and outlet portion **58** withdrawn within the shield **122**.

In another variant, as shown in **Figure 5**, the means **252** for containing any fluid leaking ~~166~~ from the second end **90** of the needle **82** within the needle shield **122** when the shield **122** is secured to the hollow body **14** in the second position **146** includes a sealing membrane **256**. The

membrane **256** is fixedly attached to the second end **134** of the needle shield **122** and permits the hollow needle **82** to pass through the membrane **256** when the needle shield **122** is in the first position **142**. The sealing membrane **256** is capable of sealing the second end **134** of the needle shield **122** when the shield **122** is in the second position **146** with the hollow needle **82** withdrawn within the shield **122**.

In still another variant of the invention, as shown in **Figure 6**, the needle shield **122** is formed of a resilient material **254** and the means **258** for containing any fluid leaking ~~**166**~~ from the second end **90** of the needle **82** within the needle shield **122** when the shield **122** is secured to the hollow body **14** in the second position **146** includes a flattened closure means **262** formed at the second end **134** of the needle shield **122**. The closure means **262** has a pair of mating lips **266** at the second end **134** permitting the hollow needle **82** and the second end **70** and center section **66** of the outlet portion **58** to pass between them when the needle shield **122** is in the first position **142**. The lips **266** are capable of sealing the second end **134** of the needle shield **122** when the shield **122** is in the second position **146** with the hollow needle **82** and outlet portion **58** withdrawn within the shield **122**.

In a further variant, as shown in **Figure 7**, the needle shield **122** is formed of a resilient material **254** and the means **270** for containing any fluid leaking ~~**166**~~ from the second end **90** of the needle **82** within the needle shield **122** when the shield **122** is secured to the hollow body **14** in the second position **146** includes a flattened closure means **264** formed at the second end **134** of the needle shield **122**. The closure means **264** has a pair of mating lips **268** at the second end **134** permitting the hollow needle **82** to pass between them when the needle shield **122** is in the first position **142**. The lips **268** are capable of sealing the second end **134** of the needle shield

**122** when the shield **122** is in the second position **146** with the hollow needle **82** withdrawn within the shield **122**.

In still a further variant of the invention, as shown in **Figure 8**, a safety infusion set **274** includes a length of flexible tubing **278** having a first end **282** and a second end **286**. A hollow catheter body **290** is provided. The body **290** has a first end **294**, a second end **298**, an outer surface **302** and an outlet portion **306**, and is fixedly attached at its first end **294** to the first end **282** of the tubing **278**. A pair of attachment wings **308** is provided. The attachment wings **308** are fixedly attached to the outer surface **302** of the catheter body **290**. The outlet portion **306** has a first end **310**, a center section **314** and a second end **318** and is fixedly attached at its first end **310** to the second end **298** of the catheter body **290**. A connection fitting **322** attached to the second end **286** of the tubing **278**. A hollow needle **324** is provided. The needle **324** has a first end **328** and a second end **332** and is fixedly attached at its first end **328** to the second end **318** of the outlet portion **306** such that fluid **336** may pass from the flexible tubing **278**, through the catheter body **290** and the outlet portion **306** and outwardly through the hollow needle **324**.

A needle shield **340** is provided. The shield **340** has an outer surface **344**, a first end **348**, a second end **352**, and is sized and shaped to fit slidably over the needle **324**, outlet portion **306**, and at least a portion of the catheter body **290**. The needle shield **340** has a cylindrical portion **342** beginning at the second end **352** of the shield **340**. The cylindrical portion **342** has an outer end **346** and an inner end **350** and is sized and shaped to fit over the outlet portion **306**, and a slotted portion **354**. The slotted portion **354** has a longitudinal slot **358**, extending from the inner end **350** of the cylindrical portion **342** toward the first end **348** of the shield **340**. The slotted portion **354** is sized and shaped to fit slidably over the hollow catheter body **290** with the slot **354** accommodating an intersection of the wings **308** and the catheter body **290**.

Means **355** are provided for securing the needle shield **340** at its first end **348** to the catheter body **290** in a first position **356**. The first position **356** permits the second end **332** of the needle **324** to extend outwardly from the second end **352** of the shield **340**. A second position **360** permits the second end **352** of the needle shield **340** to extend beyond the second end **332** of the needle **324**. Means **364** are provided for moving the needle shield **340** from the first position **356** to the second position **360** using a single hand **368** (not shown). Means **372** are provided for containing any fluid leaking **376** from the second end **332** of the needle **324** within the needle shield **340** when the shield **340** is secured to the catheter body **290** in the second position **360**.

In yet another variant, as shown in **Figure 9**, the means **380** for securing the needle shield **340** at its first end **348** to the catheter body **290** in first **356** and second positions **360** includes a first surrounding groove **384**. The first groove **384** is located on the outer surface **302** of the catheter body **290** adjacent its second end **298**. A second surrounding groove **388** is provided. The second groove **388** is located on the outer surface **302** of the catheter body **290** adjacent its first end **294**. An engaging finger **392** is provided. The finger **392** is formed of resilient material **396** and has an upper surface **400**, a lower surface **406**, an activating end **410**, an attaching end **414** and a pivot point **418** located between the ends. A securing tooth **422** is provided. The tooth **422** has an upper end **426** and a lower end **430** and is fixedly attached at its upper end **426** to the lower surface **406** of the engaging finger **392** adjacent the attaching end **414**.

The securing tooth **422** is sized, shaped and located to removably engage one of the first **384** and second surrounding grooves **388** on the catheter body **290**. A mounting post **434** is provided. The post **434** has an upper end **438**, a lower end **442** and is fixedly mounted at its lower end **442** to the outer surface **344** of the needle shield **340** adjacent its first end **348**. The post **434** is fixedly attached at its upper end **438** to the lower surface **406** of the engaging finger

**392** at the pivot point **418** such that the resilient material **396** of the engagement finger **392** will bias the securing tooth **422** downwardly to removably engage one of the first **384** and second surrounding grooves **388**.

When pressure is applied to the upper surface **400** of the engaging finger **392** adjacent its activating end **410** the securing tooth **422** will pivot upwardly away from one of the first **384** and second securing grooves **388**, permitting the needle shield **340** to move slidably from the first position **356** to the second position **360**. When the securing tooth **422** is positioned over one of the first **384** and second securing grooves **388** and pressure is relieved from the upper surface **400** of the engaging finger **392** the securing tooth **422** will engage one of the grooves, preventing further movement of the needle shield **340**.

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In still a further variant, as shown in **Figure 10**, the means **446** for moving the needle shield **340** from the first position **356** to the second position **360** using a single hand **450** (not shown) further includes an indentation **454**. The indentation **454** is located upon the outer surface **344** of the needle shield **340** adjacent its first end **348** and is sized and shaped to engage a finger pad **458** (not shown) of a user.

In yet another variant of the invention, as shown in **Figure 8**, the means **462** for containing any fluid leaking **376** from the second end **332** of the needle **324** within the needle shield **340** when the shield **340** is secured to the catheter body **290** in the second position **360** includes a first sealing membrane **466**. The membrane **466** is fixedly attached to the outer end **346** of the cylindrical portion **342** of the needle shield **340** and permits the hollow needle **324** and the second end **318** and center section **314** of the outlet portion **306** to pass through the membrane **466** when the needle shield **340** is in the first position **356**. A second sealing membrane **470** is provided. The second membrane **470** is fixedly attached to the inner end **350** of the cylindrical

portion **342** of the needle shield **340** and permits the hollow needle **324** and the second end **318** and center section **314** of the outlet portion **306** to pass through the membrane **470** when the needle shield **340** is in the first position **356**. The first sealing membrane **466** is capable of sealing the outer end **346** of the cylindrical portion **342** of the needle shield **340** when the shield **340** is in the second position **360** with the hollow needle **324** positioned within the cylindrical portion **342**. The second sealing membrane **470** is capable of sealing the inner end **350** of the cylindrical portion **342** of the needle shield **340** about the needle **324** when the shield **340** is in the second position **360** with the outlet portion **306** positioned within the slotted portion **354** of the shield **340**.

In still a further variant, as shown in **Figure 10**, the means **472** for containing any fluid leaking **376** from the second end **332** of the needle **324** within the needle shield **340** when the shield **340** is secured to the catheter body **290** in the second position **360** includes a first sealing membrane **466**. The first membrane **466** is fixedly attached to the outer end **346** of the cylindrical portion **342** of the needle shield **340** and permits the hollow needle **324** to pass through the membrane **466** when the needle shield **340** is in the first position **356**. A second sealing membrane **470** is provided. The second membrane **470** is fixedly attached to the inner end **350** of the cylindrical portion **342** of the needle shield **340** and permits the hollow needle **324** to pass through the membrane **470** when the needle shield **340** is in the first position **356**. The first sealing membrane **466** is capable of sealing the outer end **346** of the cylindrical portion **342** of the needle shield **340** when the shield **340** is in the second position **360** with the hollow needle **324** positioned within the cylindrical portion **342**. The second sealing membrane **470** is capable of sealing the inner end **350** of the cylindrical portion **342** of the needle shield **340** about the

needle **324** when the shield **340** is in the second position **360** with the outlet portion **306** positioned within the slotted portion **354** of the shield **340**.

In yet another variant, as shown in **Figure 11**, the needle shield **340** is formed of a resilient material **478** and the means **482** for containing any fluid leaking **376** from the second end **332** of the needle **324** within the needle shield **340** when the shield **340** is secured to the catheter body **290** in the second position **360** includes a flattened closure means **486** formed at the outer end **346** of the cylindrical portion **342 of** the needle shield **340**. The closure means **486** has a pair of mating lips **490** at the outer end **346** permitting the hollow needle **324** and the second end **318** and center section **314** of the outlet portion **306** to pass between them when the needle shield **340** is in the first position **356**. A sealing membrane **480** is provided. The membrane **480** is fixedly attached to the inner end **350** of the cylindrical portion **342** of the needle shield **340** and permits the hollow needle **324** and the second end **318** and center section **314** of the outlet portion **306** to pass through the membrane **480** when the needle shield **340** is in the first position **356**. The lips **490** are capable of sealing the outer end **346** of the cylindrical portion **342** of the needle shield **340** when the shield **340** is in the second position **360** with the hollow needle **324** positioned within the cylindrical portion **342**. The sealing membrane **480** is capable of sealing the inner end **350** of the cylindrical portion **342** of the needle shield **340** about the needle **324** when the shield **340** is in the second position **360** with the outlet portion **306** positioned within the slotted portion **354** of the shield **340**.

In a final variant, as shown in **Figure 12**, the needle shield **340** is formed of a resilient material **498** and the means **502** for containing any fluid leaking **376** from the second end **332** of the needle **324** within the needle shield **340** when the shield **340** is secured to the catheter body **290** in the second position **360** includes a flattened closure means **506** formed at the outer end

**346** of the cylindrical portion **342** of the needle shield **340**. The closure means **506** has a pair of mating lips **510** at the outer end **346** permitting the hollow needle **324** to pass between them when the needle shield **340** is in the first position **356**. A sealing membrane **488** is provided. The membrane **488** is fixedly attached to the inner end **350** of the cylindrical portion **342** of the needle shield **340** and permits the hollow needle **324** to pass through the membrane **488** when the needle shield **340** is in the first position **356**. The lips **510** are capable of sealing the outer end **346** of the cylindrical portion **342** of the needle shield **340** when the shield **340** is in the second position **360** with the hollow needle **324** positioned within the cylindrical portion **342**. The sealing membrane **488** is capable of sealing the inner end **350** of the cylindrical portion **342** of the needle shield **340** about the needle **324** when the shield **340** is in the second position **360** with the outlet portion **306** positioned within the slotted portion **354** of the shield **340**.

The safety syringe/catheter **10** has been described with reference to particular embodiments. Other modifications and enhancements can be made without departing from the spirit and scope of the claims that follow.